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EXAMINER

LOUIE, OSCAR A

ART UNIT	PAPER NUMBER
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2109

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05/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,270	Applicant(s) ROBERTS ET AL.	
	Examiner Oscar A. Louie	Art Unit 2109	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11, 14 and 17-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 14, & 17-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This final action is in response to the amendment filed on 03/28/2007. Claims 1-9, 11, 14, & 17-26 are pending and have been considered as follows.

Examiner's Note

1. The Applicant appears to be attempting to invoke 35 U.S.C. 112 6th paragraph in Claims 22 & 23 by using "means-plus-function" language. However, the Examiner notes that the only "means" for performing these cited functions in the specification appears to be computer program modules. While the claims pass the first test of the three-prong test used to determine invocation of paragraph 6, since no other specific structural limitations are disclosed in the specification, the claims do not meet the other tests of the three-prong test. Therefore, 35 U.S.C. 112 6th paragraph has not been invoked when considering these claims below.

Claim Objections

2. Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 14 is a method claim (i.e. process) that refers back to Claim 1. The Office considers any claim that refers to another claim as dependent thereon, i.e. a dependent claim. Since Claim 1 is a method claim comprising three steps and Claim 14 fails to add, delete, or change any of these steps, Claim 14 fails to further limit its parent claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 18-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 18 recites the limitation “said first field” and “said second field” in lines 2 & 3.

There is insufficient antecedent basis for this limitation in the claim.

- Claim 19 recites the limitation “said upper and lower fields” and “said respective patterns” in lines 1-3. There is insufficient antecedent basis for this limitation in the claim.

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- Claim 20 recites the limitation "said first field" and "said second field" in lines 2 & 3.

There is insufficient antecedent basis for this limitation in the claim.

- Claim 21 recites the limitation "said respective patterns" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 4-9, 11, 14, & 17-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keating et al (US-7171017-B2).

Claims 1 & 22:

Keating et al disclose a method and an apparatus of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames; the method comprising the steps of,

- "storing a frame of said audio-visual signal" (i.e. "The frame store 305 stores an image frame from which the data is to be recovered") [column 10 lines 24-25];
- "calculating a signature based on the stored frame of said audio-visual signal" (i.e. "The watermark to be embedded into the video image is formed from data 175 representing a UMID") [column 4 lines 24-25];

- “embedding the signature in said frame of said audio-visual signal” (i.e. “The encoded UMID is embedded in first and second fields of the image, and a copy of the encoded UMID is embedded in the frame of the image”) [column 5 lines 52-55];

Keating et al do not disclose, storing, calculating, and embedding steps as applied for a first portion of a frame. Keating et al also do not disclose “storing... thereby allowing for a reduced memory requirement relative to storing an entire frame of said audio-visual signal” and “embedding... one of said first portion and/or at least a second portion of.” However, it would have been obvious for one of ordinary skill in the art at the time of the applicant’s invention to include, “storing a first portion of a frame of said audio-visual signal, thereby allowing for a reduced memory requirement relative to storing an entire frame of said audio-visual signal” and “calculating a signature based on the stored first portion of said frame of said audio-visual signal” and “embedding the signature in one of said first portion and/or at least a second portion of said frame of said audio-visual signal” in the invention as disclosed by Keating et al since storing a portion of or the entire frame is immaterial to the overall invention due to the dependence on the intended uses that the implementer of the invention would have. In addition, the calculations of a signature based on the “stored first portion” would commonly be a Unique Material Identifier (UMID), which would then be embedded in at least the first part of an image frame since it is one of the first few pieces of unique information that may be used to validate the identity of an image/frame of an audio-visual signal.

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Claim 2:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 1 above further comprising,

- “said first and second portions of said frame of said audio-visual signal respectively comprise patterns of horizontal lines of said frame of said audio-visual signal” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame”) [column 2 lines 10-13];

Claim 4:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 1 above further comprising,

- “said first portion of said audio-visual signal comprises a slice of at least one consecutive line of a plurality of horizontal lines of said frame of said audio-visual signal” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame”) [column 2 lines 10-13];

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- “said second portion comprises a slice of at least one consecutive horizontal line of said plurality of horizontal lines of said frame of said audio-visual signal” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame”) [column 2 lines 10-13];

Claim 5:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 4 above further comprising,

- “said audio-visual signal is an interlaced signal” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame”) [column 2 lines 10-13];
- “said first portion comprises one of all even or all odd lines” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame”) [column 2 lines 10-13];
- “said second portion comprises all remaining odd or even lines not included in said first portion” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame”) [column 2 lines 10-13];

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Claim 6:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 1 above further comprising,

- “said audio-visual signal is a non-interlaced signal” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame”) [column 2 lines 10-13];
- “said first and second portions comprise consecutive slices of said audio-visual signal, wherein each of said consecutive slices are further comprised of at least one consecutive line of said frame” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame”) [column 2 lines 10-13];

Claim 7:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 1 above further comprising,

- “the embedded signature comprises a watermark” (i.e. “FIG. 1 illustrates a watermarking system, generally 10, for embedding a watermark into a video image 115”) [column 4 lines 10-12];

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Claim 8:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 7 above further comprising,

- “the watermark is embedded as a spread spectrum watermark” (i.e. “Combining the encoded UMID with a PRBS has an effect of generating a spread spectrum signal representing the watermark data”) [column 5 lines 30-33];

Claim 9:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 7 above further comprising,

- “the watermark is embedded in a different portion of said frame than the portion of said frame for which said signature is generated” (i.e. “introducing the data to be embedded into a sub-band of the first and/or second image fields and introducing data into a different sub-band of the image”) [column 2 lines 65-67];

Claim 11:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 1 above further comprising,

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- “the steps of calculating and embedding said signature are performed in real-time” (i.e. “Visible watermarks are useful to allow, for example, a customer to view an image via, for example, the Internet to determine whether they wish to buy it but without allowing the customer access to the unmarked image they would buy”) [column 1 lines 35-38];

Claim 14:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 1 above further comprising,

- “instructions that when executed by a computer implement the method of claim 1” (i.e. “Watermarking System”) [column 4 line 9];

Claim 17:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 1 above but do not explicitly disclose,

- “the first and second portions are selected based on said audio-visual signal being one of an interlaced or a noninterlaced signal”

however, Keating et al do disclose,

- “It is known, for example, that video images can be generated by performing an interlaced horizontal scan of an image. As a result, two image fields are produced for each image frame” [column 2 lines 10-13];

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Therefore, it would have been obvious for one of ordinary skill in the art at the time of the applicant's invention to include, "the first and second portions are selected based on said audio-visual signal being one of an interlaced or a noninterlaced signal," in the invention as disclosed by Keating et al since it is immaterial as to whether an audio-visual signal is interlaced or non-interlaced as both types are widely used.

Claim 18:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 17 above further comprising,

- "said audio-visual signal is said interlaced signal" (i.e. "It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame" [column 2 lines 10-13];
- "said first field comprising an upper field of said frame of said audio-visual signal" (i.e. "the image comprising a frame of image data, the frame comprising first and second image fields" [column 2 lines 5-6];
- "said second field comprising a lower field of said frame of said audio-visual signal" (i.e. "the image comprising a frame of image data, the frame comprising first and second image fields" [column 2 lines 5-6];

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Claim 19:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 18 above further comprising,

- “said upper and lower fields comprise patterns of horizontal lines of said audio-visual signal, each of said respective patterns of horizontal lines having fewer lines than the entire audiovisual signal” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame”) [column 2 lines 10-13];

Claim 20:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 17 above further comprising,

- “said audio-visual signal is said non-interlaced signal” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame” [column 2 lines 10-13];
- “said first field comprising an upper half of said frame of said audio-visual signal” (i.e. “the image comprising a frame of image data, the frame comprising first and second image fields” [column 2 lines 5-6];

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- “said second field comprises a lower half of said single frame” (i.e. “the image comprising a frame of image data, the frame comprising first and second image fields” [column 2 lines 5-6];

Claim 21:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 20 above further comprising,

- “each of said upper and lower halves of said frame comprise patterns of horizontal lines of said audio-visual signal” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame” [column 2 lines 10-13];
- “said respective patterns having fewer lines than the entire audio-visual signal” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame” [column 2 lines 10-13];

Claim 23:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 22 above further comprising,

- “said means for calculating and means for embedding are performed while said first portion is stored in said memory storage device” (i.e. “The frame store 305 stores an image frame from which the data is to be recovered”) [column 10 lines 24-25];

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Claim 24:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 23 above further comprising,

- “said first and second portions comprise patterns of horizontal lines of said audio-visual signal” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame”) [column 2 lines 10-13];
- “said patterns having fewer lines than the entire audio-visual signal” (i.e. “It is known, for example, that video images can be generated by performing an inter-laced horizontal scan of an image. As a result, two image fields are produced for each image frame”) [column 2 lines 10-13];

Claim 25:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 22 above further comprising,

- “said apparatus is a camera” (i.e. “FIG. 1 illustrates a watermarking system, generally 10, for embedding a watermark into a video image 115”) [column 4 lines 10-12];

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Claim 26:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 25 above further comprising,

- “the camera is selected from the group consisting of: a surveillance camera, a security camera, a digital video camera and a medical imaging camera” (i.e. “FIG. 1 illustrates a watermarking system, generally 10, for embedding a watermark into a video image 115”) [column 4 lines 10-12];

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keating et al in view of Senoh (US-6240121-B1).

Claim 3:

Keating et al disclose a method of embedding a signature in an audio-visual signal for authentication of said audio-visual signal, said signal being comprised of a plurality of sequential frames as in Claim 1 above, but Keating et al do not disclose,

- “said steps of calculating- and embedding are repeated until a signature is embedded for all regions of said frame”

however, Senoh discloses,

- “The above-described process is repeated for the same watermark data, whereby image signals representing images containing the same watermark data embedded therein are sequentially output” [column 8 lines 20-23].

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Therefore, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to include, "said steps of calculating- and embedding are repeated until a signature is embedded for all regions of said frame," in the invention as disclosed by Keating et al for the purposes of ensuring sequential output.

Conclusion

8. Applicant's arguments with respect to claims 1-9, 11, 17, 18, 22, & 24 have been considered but are moot in view of the new ground(s) of rejection.
9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Oscar Louie whose telephone number is 571-270-1684. The examiner can normally be reached Monday through Thursday from 7:30 AM to 4:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Myhre, can be reached at 571-270-1065. The fax phone number for Formal or Official faxes to Technology Center 2100 is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

OAL
05/01/2007



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